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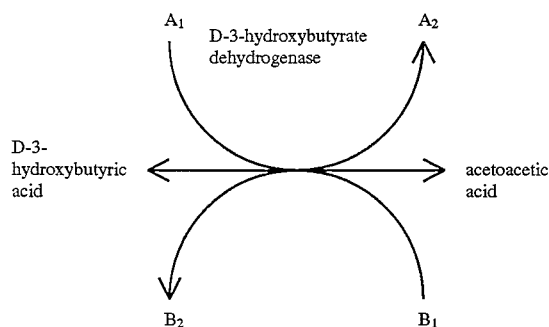
phosphate or its analog (thio-NADP compound) and thionicotinamide adenine dinucleotide or its analog (thio-NAD compound), and

- (ii) a second coenzyme selected from the group consisting of nicotinamide adenine dinucleotide 5 phosphate or its analog (NADP compound) and nicotinamide adenine dinucleotide or its analog (NAD compound),

and catalyzes the reversible reaction producing acetoacetic acid from D-3-hydroxybutyric acid as a 10 substrate;

(2) A_1 ; and

(3) B_1 ; said components (1), (2) and (3) participating in the following cycling reaction:



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wherein A_1 is a thio-NADP compound, a thio-NAD compound, an NADP compound or an NAD compound; A_2 is a reduced form of A_1 ; B_1 is a reduced NADP compound or a reduced NAD compound when A_1 is a thio-NADP compound or a thio-NAD compound, or a reduced thio-NADP compound or a reduced thio-NAD compound when A_1 is an NADP compound or an NAD compound; and B_2 is an oxidized form of B_1 , wherein the reaction of said biological sample with said reagent is conducted under conditions adapted for the enzymatically catalytic and cycling reaction, thereby effecting the cycling reaction; and

measuring and correlating a change in the amount of A_2 or B_1 to the quantity of said D-3-hydroxybutyric acid, wherein each of A_1 and B_1 is used in a concentration of 0.02 to 100 mM or more, and the D-3-hydroxybutyrate dehydrogenase is used in a concentration of 5 to 1,000 U/ml or more.

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